

TECASINT 5051 grey-green - Stock Shapes (rods, plates, tubes)

Chemical Designation

()	Main features	Target Industries
Colour	→ high thermal and mechanical capacity	→ semiconductor technology
dark brown	→ very good electrical insulation	→ electronics
Density	→ good wear properties	→ mechanical engineering
1.56 g/cm ³	→ low thermal expansion	→ cryogenic engineering
Fillers	→ resistance against high energy radiation	
glass fibres	→ high creep resistance	
	→ sensitive to hydrolysis in higher thermal range	

Mechanical properties	parameter	value	unit	norm	comment
Tensile strength	50 mm/min	110	MPa	DIN EN ISO 527-1	(1) eU
Modulus of elasticity (tensile test)	1 mm/min	6500	MPa	DIN EN ISO 527-1	
Elongation at break (tensile test)	50 mm/min	2.2	%	DIN EN ISO 527-1	
Flexural strength	10 mm/min	162	MPa	DIN EN ISO 178	
Modulus of elasticity (flexural test)	2 mm/min	6600	MPa	DIN EN ISO 178	
Elongation at break (flexural test)	10 mm/min	2.6	%	DIN EN ISO 178	
Compression strength	10 mm/min	260	MPa	EN ISO 604	
Compressive strain at break	10 mm/min	20	%	EN ISO 604	
Compression modulus	1 mm/min	3000	MPa	EN ISO 604	
Impact strength (Charpy)	max 7.5 J	20	kJ/m ²	DIN EN ISO 179-1	1)
Shore hardness	Shore D	92		DIN EN ISO 868	

Thermal properties	parameter	value	unit	norm	comment
Glass transition temperature		330	°C	-	1)
Heat distortion temperature	1,8 MPa	344	°C	DIN 53 461	(2) Thermal expansion XY/Z axis
Thermal expansion (CLTE)	23-100°C	2,8 / -	10 ⁻⁵ K ⁻¹	DIN EN ISO 11359-1,2	2)
Thermal expansion (CLTE)	100-150°C	2,8 / -	10 ⁻⁵ K ⁻¹	DIN EN ISO 11359-1,2	3)
Thermal expansion (CLTE)	50-200°C	2,8 / -	10 ⁻⁵ K ⁻¹	DIN EN ISO 11359-1,2	4)
Specific heat		1,04	J/(g*K)	DIN EN 821	
Thermal conductivity	40°C	0,3	W/(K*m)	DIN EN 821	

Electrical properties	parameter	value	unit	norm	comment
surface resistivity	23°C	> 10 ¹⁴	Ω	DIN EN 61340-2-3	
volume resistivity	23°C	> 10 ¹⁴	Ω*cm	DIN EN 61340-2-3	
Electric strength DC		24	kV*mm ⁻¹	ISO 60243-1	
Dielectric loss factor	50 Hz	3,2*10 ⁻²		DIN 53483-1	
Dielectric loss factor	1 kHz	2,2*10 ⁻³		DIN 53483-1	
Dielectric loss factor	1 MHz	1,1*10 ⁻²		DIN 53483-1	
Dielectric constant	50 Hz	3,0		DIN 53483-1	
Dielectric constant	1 kHz	2,9		DIN 53483-1	
Dielectric constant	1 MHz	2,9		DIN 53483-1	

Other properties	parameter	value	unit	norm	comment
Water absorption	24 h in water, 23°C	0,48	%	DIN EN ISO 62	(1) Corresponding means no listing at UL (yellow card). The information might be taken from resin, stock shape or estimation. Individual testing regarding application conditions is mandatory.
Flammability (UL94)	corresponding to	V0		DIN IEC 60695-11-10;	1)

→ TECASINT 5000 series show significant water uptake. Parts have to be pre-dried before fast heating to above 200 °C (drying process: 2 h per 3 mm wall thickness at 150 °C).

Our information and statements reflect the current state of our knowledge and shall inform about our products and their applications. They do not assure or guarantee chemical resistance, quality of products and their merchantability in a legally binding way. Our products are not defined for use in medical or dental implants. Existing commercial patents have to be observed. The corresponding values and information are no minimum or maximum values, but guideline values that can be used primarily for comparison purposes for material selection. These values are within the normal tolerance range of product properties and do not represent guaranteed property values. Therefore they shall not be used for specification purposes. Unless otherwise noted, these values were determined by tests at reference dimensions and machined specimen. As the properties depend on the dimensions of the semi-finished products and the orientation in the component (esp. in reinforced grades), the material may not be used without a separate testing under individual circumstances. The customer is solely responsible for the quality and suitability of products for the application and has to test usage and processing prior to use. Data sheet values are subject to periodic review, the most recent update can be found at www.ensingerplastics.com. Technical changes reserved.